

DEPARTMENT OF
NORTHERN AFFAIRS AND NATIONAL RESOURCES
EDITORIAL AND INFORMATION DIVISION

THE GROWING NORTH IN THE GROWING WORLD

R.A.J. PHILLIPS

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One of the greatest potentials of undeveloped resources in the world is the Canadian north. The surprising, and perhaps heartening fact, is that Canada's economic strength and prosperity, her reputation for vast mineral and other natural resources, has so far been built almost entirely on the natural wealth of the southern fringe of the country. Beyond it, to the north, lies a million and a half square miles containing some of the most promising mineral-bearing rocks in the country. It is scarcely touched. It lies waiting for the miner's drill in something of the way the rich prairie wheat fields awaited the plough three quarters of a century ago.

The minerals of the north are unlikely to lie fallow very long, for real as the difficulties of their extraction often are, the demand for their use must in time transcend the barriers that climate and-much more serious-distance impose. The overwhelming demand, though not necessarily the most articulate demand, will probably come from the people outside North America in their desire to share the benefits of modern technology. The measure of the potential demand can be seen in a comparison of consumption in the United States and outside. For instance, in 1954 the per capita consumption of zinc in the United States was 11 pounds and in the rest of the world it was 1.4 pounds. The per capita consumption of lead was 9.4 pounds in the United States and 1.2 pounds elsewhere. A similar disparity exists in

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most other raw materials. If the rest of the world moved only a minute distance towards the consumption levels of the United States, the need for resources would rise tremendously.

Something of the world's growing need for minerals was forecast by the Paley Commission in the United States more than 4 years ago. In 25 years, the Commission estimated, the U.S. demand for lead would increase 39 per cent, the demand of the rest of the world by 61 per cent; the demand for copper by 43 per cent and 54 per cent; the demand for nickel 100 per cent throughout the world. The United States by 1970 or 1980 would need 1,845 per cent more magnesium than in 1950. The list could become tedious. Let it merely be noted that deposits of most minerals are known in the Canadian north, and deposits of almost all are considered likely by geologists, with the exception of those produced by surface action in tropical conditions, e.g. bauxite.

The Wealth of the North

What is the wealth of the Canadian north? Some minerals have been known since earliest exploration. Some have been developed commercially for more than half a century. Others have more recently been brought into production, or are soon to be.

Extensive geological surveys have been made over almost the entire north. In the longer settled regions, the surveys have been relatively intensive; in the lesser known barren lands they have been designed merely to point the way to areas which appear promising to the prospector. All this is by way of saying that we cannot generalize: a few examples may help.

The original wealth of the north was in fur, in search of which traders became explorers and explorers became traders. It was fur which saved the north from limbo after the search for the Northwest Passage became, commercially at least, a hopeless quest. But by the Second World War white fox was falling behind minerals and the main export of the two northern Territories. In 1898 the whole world heard of gold in the Klondike and raced to find elusive fortune. When most of the adventurers returned from the Yukon they left in their wake a sense of anti-climax but they had formed the foundations of the future development of the Territory.

Great Mineral Potential

Today gold still comes from creeks which half a century ago were lined by men with hopeful pans, but now the operation is carried out by dredges on a scale typical of the new approach to northern mining. Gold is no longer as important to the Yukon as lead, zinc and silver. Production in the leading mine, which only nine years ago was less than half a million dollars, now approaches 14 million dollars. The potential, however, is undoubtedly greater than the realization. Other highly promising deposits of lead-zinc, of silver-lead, of nickel-copper, and of asbestos have been found. An area of 12,500 square miles in the northern Yukon is under active exploration by a private company seeking oil and natural gas.

The importance of these mineral deposits is heightened by a staggering potential of water power, part of whose benefits will be available to the Yukon. Present plans for the upper Yukon River and its tributaries envisage the production of 4,500,000 horsepower, that is, one quarter of the present developed capacity in all of Canada.

1939-1940

... ..

The Yukon has some good merchantable timber, not enough for significant export, but useful for local needs. In agriculture, too, production may be expected to satisfy part of the requirements of the population. Now between 500 and 1,000 acres are under cultivation, less than one-fifth of one per cent of the estimated arable land.

Less in detail is known of the Northwest Territories whose tremendous expanse, though completely mapped, has known detailed geological exploration only in very small part. The present mining industry is centered around Yellowknife on Great Slave Lake where gold production (based on ore of extraordinary high grade) increased five fold from 1939 to nearly \$11 million in 1955. Gold was not the first important mineral development. Radium-bearing ore was produced on Great Bear Lake in 1933, and since the War this area has been one of the world's most important sources of uranium. Oil was first extracted on a commercial scale from Norman Wells on the Mackenzie River in 1920; after a greatly increased production during the War, this field is now used to serve the needs of the Mackenzie Valley.

The record of mineral production in the Northwest Territories is less spectacular than its future. The first big name is Pine Point on the south shore of Great Slave Lake where there is an indicated zinc-lead ore potential of something over 60 million tons. Much of it would be available by open-cut methods, all of it is easy to treat. A list of other promising areas reads like a minor gazetteer of the Northwest Territories. Proved mineral deposits within the relatively tiny fraction of the north so far carefully investigated include (besides gold, uranium, lead and zinc) copper tungsten, iron, coal, tantalum, columbium, beryllium, lithium and nickel. Oil and gas exploration

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gold, asbestos, lead and zinc, copper, tungsten, iron, coal, tantalum,
cobalt, boron, beryllium, lithium and others. Oil and gas exploration

in the southwest portion of the N.W.T. reveals tremendous oil potentialities where one commercial gas well has been found. In 1955, over 2 1/2 million dollars was spent on oil and gas exploration in this area,

Possibly the pace of things to come is best indicated by one figure: in just seven years between 1946 and 1953 mineral production in the Canadian north increased 1,000 per cent.

Climate and Distance

Here, then, is much of the wealth the world needs. What are the problems of getting it? They are considerable. The first one which comes to any mind is climate.

Climate is not, however, as serious a factor as most people think. In the first place, in the area of Great Slave Lake where mining activity is now, and for some years is likely to be, centered, the harshness of the climate is often exaggerated. The winter temperatures are a good deal colder than in the cities of the south - Yellowknife winter temperatures average 17 degrees F. below those of Winnipeg. In the summer months, however, Yellowknife is pleasant and has an average temperature of 57 degrees, only about seven degrees cooler than Winnipeg and only three degrees cooler than Edmonton. And, though the summer growing season is short the long hours of sunlight permit the rapid growth of plants.

In neither winter nor summer does climate present any insuperable obstacles to living or to industry. Houses require good insulation, consumption of fuel oil is high. But the only real problem of cold is paying for it.

Distance is a more serious problem than climate. Transportation increases production costs more than any other single factor. The Yukon has good roads linking development areas and

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connecting them with the highway network of the south, and it has a railway to tidewater. The Northwest Territories, however has only one main highway from the south and it ends at Great Slave Lake. For the rest transportation is by water, dog sled, snowmobile, train or air. The Mackenzie River transportation system is extremely important, but it has the disadvantage of being ice-free only three or four months a year.

Transportation, serious a problem as it now seems, can be met by man. A railroad has been proposed to link the rich Great Slave Lake area with Canada's trans-continental railway network. The effect of such a railway, its proponents point out, would be not only to open up the most extensive zinc-lead deposits in North America near its terminus; It would also hasten the development of many other mineral resources now awaiting the approaching day when costs (largely transportation costs) can be reduced to the point where the operations are not only commercially profitable, but even more profitable than other mineral developments far to the south. It would, in fact, open up other resources of the 530,000 square miles of the Mackenzie District,

Others Factors

It would be both unrealistic and unfair to think of the place of Canada's growing north in the growing world merely in terms of the material wealth which it is about to yield. The north has importance to Canadians in other ways. It is a defensive zone used to warn of the approach of hostile aircraft, a zone used to protect the settled areas of the south from their onset. Colourful and dramatic as the building of radar lines across the Arctic and sub-Arctic are, their importance to the future of the north is largely confined to the transportation

routes which they encourage as well as for the knowledge of northern conditions to which their construction and operation will undoubtedly contribute. The north of Canada is not being developed for defence, nor does the development of the north depend upon defence. It is, however, an activity which might, if worst ever came to worst, make the free world even more grateful for the existence of the Canadian Arctic.

The north is also important because of its people, the 10,000 Eskimos who inhabit some of the farthest and bitterest climates of the earth. They are people watched carefully by their fellow Canadians for they are now facing difficult problems of adjustment as the south moves at an accelerated pace into their homeland. With their closely-linked problems of health, education and new economic outlets to replace traditional ways, the people of Canada are closely concerned. This is neither charity nor condescension. They are important citizens of Canada, citizens who, particularly in the light of their numbers, have had a unique impact on the art world through the quality of their remarkable stone carving. They are also the people who know the High Arctic best, and upon whom Canada and the rest of the world will have to rely for its progressive development.

Across the Pole

Canadians are not alone in their appreciation of the potentialities of northern development. Canada's next door neighbour across the Pole has been actively exploiting the wealth of the north for at least a generation. The best of many of the Soviet Union's mineral reserves lie in the sub-Arctic and these have for some time been contributing to the national wealth. Like Canada, the U.S.S.R. faces problems of climate and transportation. Soviet successes in developing the Northern Sea Route are well known. Railways have long reached into the European Arctic and supplementary networks have been developed both in western and eastern Russia. Regular air routes cross much of the Soviet north.

It is not surprising that the north in the Soviet Union has reached a later stage of development than in Canada. Canadians, with their limited population and relative national youth, have been deeply pre-occupied in their short history with the opening of regions closer to the old and settled parts of the country. They have had no population pressures, no shortages of raw materials to lead them north, and only recently have they had the economic strength, the freedom from pre-occupations with other frontier building, the peace and prosperity to enable them to turn to the north.

The longer experience of the Soviet Union in northern affairs, the professed desire of its leaders to promote closer relations through the exchange of information and of visits, has led naturally to proposals for the sharing of northern knowledge. The idea was discussed with Mr. Molotov on Mr. Pearson's visit to Moscow in the autumn of 1955. The success of such exchanges with the Soviet Union could be much more than a test of the good relations of the two countries; it might well be positive contribution to the early development of the Canadian north,

The North and the Rest of the World

Canadians no longer look upon their north as merely frozen wastes. Neither do they look upon the north as the repository of fantastic wealth ready for the taking. They look upon it as an opportunity and as a problem. For them it is both. For the rest of the growing world it is an opportunity, one of the most hopeful of the second half of this century.

MINERAL PRODUCTION

NORTHWEST TERRITORIES

	<u>Quantity</u>	<u>1954</u> <u>Value</u>	<u>Quantity</u>	<u>1955(A)</u> <u>Value</u>
Gold	308,563 ozs.	\$10,512,741	318,341 ozs.	\$10,990,405
Silver	59,037 ozs.	\$ 49,152	115,109 ozs.	\$ 101,595
Pitchblende (B)	(not given)	\$15,486,157	(not given)	\$12,000,000
Crude Petroleum	369,887 bbl.	\$ 344,960	374,000 bbls.	\$ 342,000
Natural Gas	29,085 M.cu.ft.	\$ 9,700	19,000 M.cu.ft.	\$ 6,000
Tantalum(Ta205)	77 lbs.	\$ 2,696	390 lbs.	\$ 9,760
Columbium(Cb205)	90 lbs.	\$ 2,294	42 lbs.	\$ 1,032
TOTAL		<u>\$26,407,700</u>		<u>\$23,450,792</u>

(B) includes Radium salts, uranium oxides and salts, silver and cobalt

(A) Preliminary Estimate

YUKON TERRITORY

	<u>Quantity</u>	<u>1954</u> <u>Value</u>	<u>Quantity</u>	<u>1955 (A)</u> <u>Value</u>
Gold	82,208 ozs.	\$ 2,800,826	74,380 ozs.	\$ 2,567,895
Silver	6,992,279 ozs.	\$ 5,821,562	5,623,165 ozs.	\$ 4,963,005
Lead	33,765,290 lbs.	\$ 4,500,913	25,760,986 lbs.	\$ 3,704,430
Coal	14,113 tons	\$ 202,772	8,399 tons	\$ 87,444
Zinc	23,645,588 lbs.	\$ 2,832,741	18,780,188 lbs.	\$ 2,563,495
Cadmium	252,853 lbs.	\$ 429,850	305,834 lbs.	\$ 519,918
TOTAL		<u>\$16,588,664</u>		<u>\$14,406,187</u>

(A) Preliminary Estimate

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